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ABSTRACT

This literature review surveyed and evaluated investigations conducted in nursery schools and preschools in order to provide better understanding of the nature of early intervention and its effects on young children. Studies are described in terms of methodology and outcomes, with focus on enrichment programs and compensatory training programs (such as Head Start) for disadvantaged preschool children. Major topics surveyed were social growth, emotional growth, and the nature-nurture controversy. (DP)

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NURSERY SCHOOL, PRESCHOOL, AND PROJECT HEAD START:

WHAT ARE THE BENEFITS

A Review of the Research Literature

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INTRODUCTION

There are many changes in our society that point to the urgency of studying the important issue of preschool education, e.g., the awareness and concern among educators about the disadvantaged child's handicaps and learning problems; the importance of education for all children; the fact that so many children attend nursery school and a determination of the benefits could have an impact for later years in school; and the increasing number of women entering the labor force--many are professional women who have an awareness of the importance of exposing their children to rich and stimulating experiences prior to entering school.

The purpose of this study was to survey and evaluate investigations conducted in nursery schools and preschools in order to better understand the nature of this experience and its effect on the young child. We want to see what studies were done in the past: how they were carried out; what their outcomes were; and how these studies are relevant to our present concerns, especially that of enrichment programs and/or compensatory training for our disadvantaged preschool children. Note our review covers nursery school only for we did not include kindergarten research within the scope of this paper. For more general reviews of nursery school literature see Sears and Dowley (1963) for research on teaching, Fowler (1962) for a review on cognitive learning in infancy and early childhood, and Swift (1964) for an assessment of the nursery school and day nursery experience and their impact on children. Hunt (1961) reviews the effects of nursery school and orphanages to support his view that intelligence is not fixed.

The greatest contribution of nursery school experiences seems to be in the development of social skills and promoting social development above and beyond those attributable to maturation and growth that would naturally come with age.

The research indicates that with an increase in nursery school attendance, children become more independent, more active, engage in more constructive activity, and interact more frequently with their compeers --that is, they are more sociable.

SOCIAL GROWTH: EARLIER STUDIES WITHOUT CONTROLS

The earlier studies in this area yielded interesting results which seem to indicate social change. However, data gathered through repeated observations of the same child over a period of nursery school attendance without controls, inadequate tools to measure social development for these techniques lacked standardization and the lack of awareness and/or accountability of the all important factor of maturation and normal social growth due to age, question the validity of these findings.

Following is a brief summary of six such studies which should be interpreted with the above mentioned limitations in mind.

Mallay (1935) observed 21 children over a period of one school year. She made 24 five-minute observations of each child in order to determine the amount of social contacts. In the spring the children spend a greater amount of time in social contact and in group contact; in their social contacts the number of successful involvements increased while the number of unsuccessful involvements decreased. The children were more constructive in their play and their attention span increased with nursery school attendance.

Parten (1932) made daily, one-minute observations of 42 nursery school children, aged 2 to 5, over a period of eight months. "Social participation scores" were computed by weighing the following categories from -3 to +3 respectively: unoccupied behavior, solitary play, onlooker behavior, parallel play, associative play, and cooperative play. The tendency was toward increased social participation as contrasted with solitary behavior and onlooker with increased nursery school attendance.

Joel (1939) by the use of teachers' ratings found that with increased nursery school attendance children exhibited more mature behavior--that is, they were more independent, showed more self-control and tended to "grow up."

Horowitz and Smith (1939) studied the social patterns of children in 13 nursery schools. They observed children for half-minute intervals during the free play periods, and found sedentary behavior to correlate negatively and combative behavior to correlate positively with increased nursery school attendance.

Jersild and Fite (1935) collected data on the influence of nursery school experience on children's social adjustments by systematic observations of the behavior of the children during the school day. They gathered additional information from records and reports submitted by teachers. The fall data indicated that children who had previous nursery school experience entered into a larger number of social contacts than did children who had not previously attended nursery school. Although many of these contacts were due to a carryover of special friendships from the preceding year, they found in the course of the year that nursery school experiences improve social behavior over and above the gain that would come with age.

Vitz (1961) studied the changes in five kinds of behavior over a period of seven weeks. The behaviors were aggression, adult-like ("grown-up") behavior, dependency, thumb sucking and disciplinary behavior. Four trained observers monitored the children's behavior. The general trend exhibited in this "fairly typical nursery school" was that adult-like behavior consistently increased and anti-social aggressive behavior decreased as the weeks progressed.

SOCIAL GROWTH: EXPERIMENTAL STUDIES WITH CONTROLS

Let us now turn to studies that have similar results but which utilized a much sounder methodological approach. Consequently, these findings are much more valid and meaningful and lend support to the previously cited studies.

The investigators mentioned in this section compared nursery school attenders with non-nursery school attenders on the degree of change, if any, of specific variables over an extended period of time. The use of a control group--that is, a matched group of children who do not attend nursery school--automatically takes into account the maturation factor and the out-of-school influences on various aspects of change studied.

Walsh (1931) studied 22 nursery school children and a control group of 21 children. Ratings were made at the onset of nursery school attendance of the experimental group and again after periods of two, four and six months. The general findings were that nursery school attenders were more socialized, more independent, more self-reliant, and more assertive than non-nursery school attenders. The results are derived by the changes noted at the various rating points.

Kawin and Hoffer (1931) compared 22 pairs of nursery school and non-nursery school children on the findings of mental tests, physical examinations, and "habit status." The latter includes eating, sleeping, dressing and undressing, and toilet habits plus body manipulation, motor coordination, speech, and play activities. Home observations of the children and interviews with the mothers in the fall and spring were their main avenues of data collection. No differences were found in physical characteristics or in degree of mental growth, but some differences were found in favor of the nursery school attenders in eliminating undesirable habits and the development of greater independence of adults. These differences were not large and reliabilities of data were not given.

Thompson (1944) studied the effects of two curricula differing in quantity and quality of teacher guidance on the social and emotional development of 23 children. The subjects were divided into two experimental groups equated as nearly as possible on chronological age, mental age, socioeconomic status of parents, and personality factors. In one group (A) the teachers were instructed to adopt an impersonal policy, while in the other group (B) the teachers were instructed to help the child in his relations with other children and his use of play materials. (The master teacher was the same person for both groups.) The highly guided group (B) was more ascendant, more constructive, and showed greater social participation and leadership. There was no significant differences in I.Q.

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Hattwick (1937), using an average of three teachers ratings on 60 personality characteristics of 106 pupils who had been in nursery school attendance for nine months. An equal number of children were matched on

age, sex, nationality, race, and economic level. These children had been in attendance in the same school only six weeks. Hattwick (1937) found that children became "more sociable" with longer nursery school attendance. That is, they no longer feared strange people, avoided play with other children or stayed close to adults.

Cushing (1934) compared 33 former nursery school children with 25 non-nursery school children on kindergarten adjustment as reported by teacher ratings on a list of behavior characteristics. The findings do not reveal a striking difference in adjustment between the two groups, although the nursery school children seemed somewhat superior in total adjustment and exceeded the non-nursery group in amount of material used and in total number of activities.

Brown and Hunt (1961) compared the teachers' ratings of social adjustment in kindergarten children who were divided into two matched groups of attenders and non-attenders of nursery school. The non-nursery children were perceived to be better adjusted in personal adjustment and to how they related to other children, while the intelligence was perceived to be about the same for both groups.

Greene (1931) compared by means of ratings and report cards, kindergarten children who had nursery school experiences with kindergarten children who had not previously attended nursery school. Children who had attended nursery school appeared to exhibit more independence and social poise.

Allen and Masling (1957) compared 34 children with nursery school experience with 62 children without nursery school experience on data collected from a battery of five sociometric questions. The children

who were pupils in kindergarten, first, and second grades, were equated in terms of scores on the Vineland Social Maturity Scales, parents' education, age, and sex. No statistically significant differences were revealed in kindergarten and first grade, but significant differences were recorded in second grade. The nursery school attenders in second grade were perceived by their peers as more prestigeful, more spontaneous, and more intelligent.

The hypothesis that young children, given the opportunity to interact with peers in a controlled environment over a period of time, will acquire social skills and achieve social development above and beyond what is normally expected with age, seems to be quite consistently supported by the studies revieved. However, differences in degree and specific aspect of change were noted from study to study.

The following factors may possibly account for these differences: the large variety of behaviors used as a measure of social adjustment and development by the various investigators; teachers who did the ratings had differences in personality, training, experiences, and had differing concepts of adjustment and social development; the tremendous variety in the programs the children were exposed to; and the differences in the children themselves. These factors, plus methodological differences explain, in part, the variety of results noted and render comparisons of the different studies difficult, if not impossible.

The underlying assumption taken by most investigators is that the environmental setting modifies behavior, yet very few investigators explained or attempted to control the environment. Studies which are more specific in this aspect are badly needed to give us greater details about the influence of environmental intervention.

The main weakness in this area is the almost complete lack of study to see whether or not the changes made are temporary or permanent. That social development above and beyond what is attributable to age and maturation occurs with nursery school experience seems unquestionable, but the permanency of these gains is still a debatable question.

EMOTIONAL GROWTH

The above studies investigated one aspect of the all important emerging personality of the young child--that is, social development and maturity. Fewer studies were carried out to study the emotional growth in young children.

Jersild and Markey (1939) observed the conflicts of 36 children over a period of two years. The trend of the group was to enter into a larger number of fights and quarrels with increased nursery school attendance. The investigators attributed this increase to several factors above and beyond the increase in sheer combativeness of these children. The nursery school experience enabled the children to increase the scope and number of their activity, consequently yielding more opportunities for collisions and conflicts. Another important factor is the fact that during the second year the children occupied the same play space although they were more cramped for space with increased nursery school attendance.

Mattwick (1937) compared three teachers' ratings on children with nine months of nursery school experience with children having only six weeks of such experience. Matching was done on the basis of age, sex, nationality, race, and economic level. He found that with longer nursery school attendance there were fewer nervous tendencies such as twisting of hair, tenseness, and wriggling while sitting.

Joel (1939), using teachers' ratings, found that with increasing nursery school attendance children made a higher score on emotional maturity that is attitude about minor injury, mood, and behavior in the face of difficult tasks.

Koshuk (1947) carefully reviewed the report of records gathered in two nursery schools over a period of three years. The subjects were children of employed mothers. The data indicate that attendance reduced tensions, lessened friction in the home, and reduced insecurity in non-home situations.

These few studies on the effect of nursery school attendance on emotional adjustment and development seem to consistently agree that such experiences are positive for the young child. That is, with increasing nursery school attendance, children made higher scores on emotional maturity, were less sensitive to criticism, and exhibited more aggressive behavior.

No investigator attempted to describe the important psychological environment that the child was exposed to while in nursery school. This limitation tends to make the findings general and render practical application impossible.

THE NATURE-NURTURE CONTROVERSY: DOES INTELLIGENCE "GAIN" WITH PRESCHOOL ATTENDANCE?

The nature-nurture question concerning intelligence was of paramount interest to psychologists and educators in the thirties. A large proportion of the studies investigating the effects of nursery school attendance dealt with this question. The first attempt was made at the Merrill-Palmer Institute by Woolley in 1925. The most extensive work in this area was carried out at the Iowa Child Welfare Research Station. Contradictory

opinions about the nature-nurture question prevailed at the time. Wellman was the most staunch believer in the influence of the environment in changing I.Q., while Goodenough emphatically stated that the findings were inconsistent and inconclusive. These difference of opinion probably account, in part, for the marked variety of findings reported. Although the findings are conflicting, these studies are extremely interesting and raise as many questions as they have answered.

We will review several pertinent studies done in the area and, afterward, interpret their conflicting results.

Woolley (1925) examined 43 nursery school attenders and 36 non-nursery school attenders. The control group was composed of the children on the Merrill-Palmer Institute's waiting list. No attempt was made to match the children in the two groups. All of the children were given the Stanford-Binet test at the onset of the experimental groups nursery experience and again at the end of the academic year. Among the nursery school attenders, 33 percent showed a gain of 20 or more points on the retest and 65 percent, a gain of 5 or more points. Only 6 percent of the non-nursery school attenders showed a gain of 20 or more points and 33 percent, a gain of 5 points or more, with an average increase of 12.7 points on the retest.

Wellman (1932) thoroughly studied the records of 600 children who attended the preschool laboratories of the Iowa Child Welfare Research Station from 1921-1932. Periodically tests were given to all children with intervals of about 6 months during the preschool ages. The Kuhlmann revision and the Stanford-Binet were the instruments used. Some of the important findings are as follows: marked increase in I.Q. on repeated tests; significant gains were made during the academic year while no gain was made over the summer months; the greatest gains were made by

children in lower levels of I.Q. on first test, the least gain by those in the highest levels; a positive correlation of I.Q. gain with numbers of school days attended; and children attending full day sessions gained more than children attending half day sessions.

A second study was conducted by Wellman (1934). She studied 68 preschool-age children not attending nursery school. These children were in the infant laboratory group of the Iowa Child Welfare Research Station. She found that those who were average or slightly above on intelligence the first test increased while the ones who were superior on intelligence tended to decrease.

Starkweather and Roberts (1940) examined the records of children who had attended the Merrill-Palmer nursery school. The Merrill-Palmer tests and the Stanford-Binet were given to 107 and 103 children respectively, upon entrance to the Merrill-Palmer nursery school. The children were retested after an interval of 6 to 40 months while still in attendance. Their findings were as follows: I.Q. gains were made by children attending nursery school; an inverse relationship is seen between initial I.Q. and levels of I.Q. gains; no correlation is noted between number of days of nursery school attendance and percentile of I.Q. gain; changes made during nursery school attendance are real as they tend to be maintained after withdrawal from nursery school.

Hildreth (1940) compared 41 children with at least 4 months of nursery school or kindergarten experience with 48 children lacking this experience. The Stanford-Binet was given twice, upon entry into the first grade and a second time 18 months later. On the first test, the nursery school attenders were superior to the non-nursery school attenders with a mean

I.Q. of 119.6 and 113.95 respectively. However, by the second examination this difference had disappeared. It is interesting to note that the gain was only temporary.

Goodenough and Maurer (1940) analyzed test records of 147 children who had attended 40 to 575 days of the Institute's nursery school (University of Minnesota), and 260 children without such experiences. Those children with nursery school experience did no better on standardized intelligence tests than those lacking nursery school experience.

Frandsen and Barlow (1940), using the L form of the revised Stanford-Binet tests of intelligence, tested and retested a group of 30 experimental children (attending nursery school) and a group of 28 control children. The latter group of children were taken from the waiting list and were equated for age, socioeconomic status, habit training in the home, and for sex. The tests were given to both groups preceeding and following the experimental group's term in nursery school. The interval between test and retest was 5.5 months. The experimental group gained 3.34 I.Q. points, whereas the control group only 0.53 points. The gain approximates statistical significance, but appears very small.

Voas (1940) compared the distributions of I.Q. of nursery school graduates with the distributions in the larger group of Winnetka school children and found that the nursery school attenders were slightly higher, but the differences were too slight to be significant. From this Voas concludes that experience in the Winnetka nursery school does not tend to raise children's I.Q.

Bird (1940) studied a group of children (age $3\frac{1}{2}$ to $6\frac{1}{2}$) who attended Rhode Island College of Education children's school. This school emphasized an encouragement of independent thinking. The effects of a year's

training in this special school upon the I.Q. of children appears to have been negligible.

Page (1940) was concerned with the permanency of nursery I.Q. gains. He studied 72 children from kindergarten to the fifth grade, who had 125 to 525 days of nursery school experiences. He compared them with their closest siblings (in age) who had not attended nursery school on the results of the Stanford-Binet test. No differences were found between nursery school attenders and their siblings without nursery school experience.

Olson and Hughes (1940) compared the subsequent growth of children with and without nursery school experience and found nursery school attenders to be superior in mental age. However, when comparisons were confined to children of parents in the professional groups, the differences disappear.

The hypothesis that accelerated mental growth occurs in children attending a nursery school which is designed to provide rich, intellectual stimulating experiences, is still not completely substantiated. A number of possible factors that may account for the wide variety of findings are discussed below.

The nature and content of the program with the degree and kind of mental stimulation available to the children is extremely important when considering the effects of the environment on intelligence; yet, very few studies mentioned the quality of nursery school experience the children received or the type of environment they were exposed to.

The selective factors and the inequalities in selection of groups had, undoubtedly, some effect on the findings. The investigators studied

a variety of subjects who were primarily selected on the basis of nursery school enrollment. The factor of enrollment itself is selective. The motivation for sending the child to nursery school is important, yet no investigator explored this area. Whether a child is sent to nursery school because his parents feel it would be good experience for him; or to be rid of him; or because of the absence of the mother in the home, is pertinent and provides clues about the greater environment of the child. Also, out-of-school experiences of the child and the larger environment of his personal world outside school are important factors which enhance or hinder mental growth. Another important factor is the difference in the tests given making comparability difficult. Also, examiner bias was not accounted for.

The majority of studies reviewed do not seem to support the hypothesis that intellectual growth is accelerated due to nursery school attendance. These findings may be explained, in part, by the fact that the majority of subjects studied were from middle to upper income homes in which verbal acquisition was maximized. Therefore, being placed in a nursery school with similar intellectual stimulation had little or no additional affect on their mental development.

If the above is true, then it stands to reason that a child coming from an impoverished home environment or an orphanage where intellectual stimulation is at a minimum that exposing him to the rich, stimulating experiences of nursery school, his mental development will accelerate. The following studies seem to support this interpretation and are relevant to compensatory education and enrichment programs for disadvantaged children.

Barrett and Koch (1930) studied the effect of nursery school attendance upon the mental test rating of orphan children. The 27 experimental children were matched to control children with respect to sex, chronological age, and institutional experience. After a period of 6-9 months elapsed between the group the nursery school attenders moved from an average I.Q. of 91.7 on the initial test to 112.5 on the retest while the control group were 92.6 and 97.4 on the two tests. A consistently greater gain was seen in the experimental group on mental test performance.

Crissey (1937) studied the mental development of children of the same I.Q. in different institutional environments. The subjects were children in residence at four Iowa institutions, and they were matched with reference to intial I.Q., chronological age, and length of interval between test and retest. The Stanford and Kuhlmann revisions of the Binet scales were used for all individual tests. Comparing the means of the orphanage group with the group in the institution for the feeble minded showed a loss in I.Q. in the feeble minded group, but no such loss in the orphanage group.

Gavrin and Sacks (1963) studied the intellectual level of 132 "dependent and neglected" children aged 2 through 7. The children were intially tested at the onset of their stay at the institution (during the 2nd and 3rd week), and retested two weeks before being discharged, or after a stay of nine months if they were not leaving the institution. The revised Stanford-Binet scale was used. Statistically significant increments in I.Q. were made in the majority of the children and the amount of gain seemed directly related to the

duration of stay in the institution--at least up until one year. The greatest gain was made by the children who initially scored quite low.

Skeels (1940) summarized studies done at Iowa on the mental development of children who were subjected to different environments. In one study, 13 mentally retarded orphans under three years of age were transferred from the orphanage to an institution for feeble minded children. They were placed as singletons in wards with the brighter, older girls. The children were pampered by these girls and were taken to all institutional functions. Twelve children of similar ages but higher in mental level, who remained in the orphanage, were studied as a control group. The experimental group made an average gain of 27.5 I.Q. points while the contrast group lost an average of 26.2 I.Q. points over a period of two years.

Skeels, Updegraff, Wellman, and Williams (1938), using both teachers' ratings and timed observations in a study of orphanage children, found that over a relatively short period of time, nursery school attenders showed marked superiority over non-nursery attenders. However after 1½ years, the children in nursery school revealed losses in social competence and maturity.

That environmental intervention of young children from impoverished backgrounds greatly enhances their performance on standardized intelligence tests has been consistently demonstrated by studies reviewed. These methodologically sounder studies are pertinent, interesting, and meaningful in answering some of the many questions we have concerning the education of economically and socially disadvantaged and institutionalized children.

The use of controls and the attempt by some investigators to explain the experimental environmental intervention that the children were subjected to give us positive direction toward educational innovation. Nursery school attendance by young impoverished children have their greatest effect on the acceleration of mental and verbal development. The greatest amount of change occurred when a program was specifically developed and designed to meet the needs of a specific population. Generally it was found that children develop according to the demands made on them by the environment.

A limitation of great importance in these studies is the lack of extended follow-up investigation and intervention in later years. Although tremendous changes take place as a consequence of environmental intervention with young children coming from impoverished backgrounds, the permanency of such changes is still a debatable question. Also intervention at later ages is still a very much unexplored area.

RECENT EFFORTS: PROJECT HEAD START AND OTHER COMPENSATORY PROGRAMS

In the sixties, we have seen a monumental effort to compensate for the education of Negro, Puerto Rican, Mexican-American, American Indian and poor white children by providing preschool children Head Start programs which were hastily designed, politically motivated, erratically and sometimes chaotically, administered. Despite our critical remarks, the research indicates that the Head Start programs have succeeded. The largest evaluation effort was undertaken by Coleman, et al (1966) and they found that Negroes who went to Head Start programs scored higher on ability tests (verbal and non-verbal) than nonparticipants. The lower the SES of the participants, the greater the gain. This report is based

only on pupils who attended Head Start just prior to entering first grade. Since no before and after comparisons could be made, the analysis was based on differences of those children who participated and those who did not. To control for selectivity in parental interest in education, three groups comprised the sample. They were: (1) participants, (2) nonparticipants attending the same school as participants, and (3) nonparticipants from communities where the program was not available. Coleman and his colleagues (1966) conclude that:

> The differences between scores for Head Start participants and nonparticipants are small in many instances. Considering the short length of the program, it may be unreasonable to assume that participation could immediately and universally affect the verbal and nonverbal reasoning abilities of pupils. Instead, the program may impart to participants a higher degree of educational motivation--a desire to learn and an interest in school --that would not become evident in the form of higher test scores until a pupil had been in school for several years. (Coleman, 1966, p. 516)

Other evaluations of Head Start and preschool programs by Wolff and Stein (1966a; 1966b), Gray, Klaus, Miller and Forrester (1966), Gray and Klaus (1965), Goldstein and Chorost (1966), Eisenberg and Connors (1966), Castiglione and Wilsberg (1966), Smilansky (1966), Weikart, Kamii and Radin (1964) and in Baltimore (Research Council of the Great Cities Program, 1964), have obtained results that parallel the Coleman findings. At first, initial gains in achievement and/or I.Q. are reported; however, after a year these gains were not sustained.

These studies used control groups contrasting the experimental (preschool) group with at least one, and often more than one, control group. The researchers in the "sixties," compared to the thirties and forties, are more sophisticated in their use of control groups. However, we find

fault in present day evaluations that continually use intelligence and achievement test scores to assess the efficacy of a preschool program. These tests may be indicators of change, but often they yield unreliable scores for four, five and six year olds. Also, these studies seldom include observatival data, typically resting their hopes on paper and pencil tests. Perhaps the gains they reported are only indicators of children learning how to take tests: for improvement from time 1 to time 2 is not indicative of the program but probably of test sophistication.

A more important criticism of contemporary research is ignoring the assessment of motivational gains, interpersonal skills, peer relationships, and child-teacher involvement. The world of the child may have been expanded (perhaps constricted) in preschool, but the research does not probe these "meaty" areas. The world of a child is bigger than a Stanford-Binet gain. Must we always weigh gain or loss by points or pounds? Children are more than products or materials and I.Q. or reading gains, if any, are not adequate to assess social and personal gains. Perhaps these gains cannot be assessed reliably or validly, at least the investigators can look at the process of growth and describe it to the best of his ability.

SUMMARY

The following conclusions can be drawn from this review of the literature. Nursery school attendance seems to make its greatest contribution in the development of social skills and in the enhancement of social growth in children from middle and upper income homes. It also seems to help these children become more independent and achieve greater emotional maturity.

Whether or not nursery school experience accelerates intellectual growth in children from these homes is a debatable question. However, it is without a doubt that intellectual development of children from impoverished backgrounds is greatly enhanced by such interventions.

The permanency of any of these changes (emotional, developmental, and intellectual) is a question that has been left unanswered. Only extended follow-up studies will give us the information we are seeking.

Programs designed to meet the needs of a specific population yielded greater change than general nursery school intervention. This fact is especially relevant to the education of disadvantaged children and should be kept in mind by educators who are responsible for educational innovations and policies.

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